

VEHICLE SURFACE CARE PRODUCTS IN SHEET FORM

This application claims the benefit of U.S. provisional application number 60/473243 filed on May 23, 2003, incorporated herein by reference in its entirety.

Field of The Invention

5 The field of the invention is vehicle surface care, especially washing and waxing of motor vehicles.

Background of The Invention

Numerous products are known for vehicle surface care, including cleansers, polishes, protectants, surfactants, and coloring agents. Such products are often shipped in concentrated
10 liquid or paste forms to reduce shipping and storage costs, and to increase ease of use by customers. Unfortunately, both liquids and pastes are subject to drying out, and separation.

Another option is to market products in a dry form. Unfortunately, dry forms can also be problematic. Failure to fully mix the product with water can result in non-dissolved particles being suspended in the product, which can ultimately scratch or otherwise damage
15 the surface to which the product is applied. Dry products are also rejected by some consumers due to the propensity of powders to spill, become inhaled, and so forth.

Chemical impregnated papers solve some of these problems. In the non-analogous field of personal care, papers impregnated with a cleaning composition are used for washing one's face and hands. Impregnated papers are also used to deposit antistatic compositions on
20 computer screens, and to provide fabric softeners for laundry applications.

One problem with many of the known impregnated papers is that the user is left with a residual paper that needs to be thrown away. That problem has been solved in some industries by using a carrier that itself dissolves in water. US patent publication no. 2002/0098994, for example, teaches a "paper soap" that dissolves in one's hands as water is
25 applied. Laundry detergent and dishwasher soaps have also been "packaged" as sheets that dissolve when immersed in water, See U.S. Patent No. 4,557,852 titled "Polymer sheet for delivering laundry care additive and laundry care product formed from same" directed to laundry detergents, and U.S. Patent No. 4,176,079 titled "Water-soluble enzyme-containing article" directed to dishwasher soap."

Interestingly, each of the known applications involves a perceived benefit by providing a standard amount of the product for use in a standard application. The paper soap application is attractive to commercial establishments that seek to cut down on excess usage by patrons. The laundry application provides pre-measured amounts suitable to standard laundry loads. The dishwasher soap is similarly directed to providing a standard amount of product for a load of dishes.

No one seems to have appreciated that surface care compositions impregnated in dissolvable papers would be advantageous in other applications, such as motor vehicle surface care, in which a product is mixed with a highly variable amount of water, to clean or treat vehicles with highly variable surface areas. Moreover, no one in the prior art seems to have appreciated that dissolvable papers provide a desirable form for products other than soaps and other cleansers. Thus, there is still a need to provide vehicle surface care compositions in sheet form, where the sheet dissolves in water.

Summary of the Invention

The present invention combines one or more surface care compositions with a sheeted substrate that dissolves in water.

Preferred surface care compositions comprise at least one of a cleanser, surfactant, shine promotion agent, and protective agent, and are directed to automotive or other motor vehicle applications, such as trucks or boats. Compositions are preferably present in spray dried, freeze-dried, concentrated, or powdered form, and mixed with or layered onto the substrate.

The sheets can be substantially any suitable size or shape, but are preferably rectangular with sides having a surface area between 10 and 200 cm², inclusive. Sheets can be delivered to a consumer in any suitable presentation, including stacked, rolled, bound or unbound, and perforated or not-perforated.

Commercial products are advantageously packaged with instructions for dissolving the sheet in water prior to use. Methods for using contemplated sheeted surface care products are straightforward. In general, a user: (a) places a quantity of water (which most likely would not be accurately measured) in a bucket or other container; (b) selects one or more sheets; and (c) places the selected sheet(s) in the water. Once the sheet(s) dissolve(s), the

user applies the mixture produced onto the target surface of the vehicle, using a rag, sponge, or other applicator. In some instances, remaining mixture can be stored for subsequent use. Advertising methods are also contemplated, which reference a benefit of having the product in sheet form.

- 5 There are numerous benefits to the products contemplated herein. First, the water soluble substrate(s) allow the consumer to create the product fresh, which reduces possible evaporation of the product from storage, etc. Second, since the substrate(s) dissolve in water, there is no waste material produced by these products. Third, the consumer is able to purchase the product in a concentrated form, which reduces bulk and is more convenient for storage, transportation, use, etc.

Various objects, features, aspects and advantages of the present invention will become more apparent from the following detailed description of preferred embodiments of the invention, along with the accompanying drawings in which like numerals represent like components.

15 **Brief Description of The Drawings**

Fig. 1 is a perspective view of a preferred embodiment of a water dissolvable substrate sheet having a surface coated with a surface care composition.

Fig. 2 is a perspective view of another preferred embodiment in which a surface care composition is distributed throughout a water dissolvable substrate.

- 20 Fig. 3 is a perspective view of another preferred embodiment in which a water dissolvable substrate sheet is split open to reveal a pocket of surface care composition 120C.

Fig. 4 is a vertical cross section of a water dissolvable substrate sheet having multiple cavities in which a surface care composition is disposed.

- 25 Fig. 5 is a perspective view of a booklet of water soluble sheets containing a surface care composition.

Fig. 6 is a perspective view of an unbound stack of water soluble sheets containing a surface care composition.

Fig. 7 is a top view of a sheeted product, perforated for subdivision into individual sheets.

Detailed Description

In Figure 1, a sheet 110 comprises a water soluble substrate 112 onto which a surface
5 care composition 114 has been deposited, by impregnation, pressing, or any other suitable means.

An individual sheet can comprise one or more surface care compositions, and any surface care composition can comprise one or more compounds. Among other things, compounds included in the surface care compositions can include cleansers, chemical agents
10 that promote shine for leather, chrome, or other materials, protective coats for metal, paint, leather, or other surfaces. In Figure 1A, the surface care composition 114 is intended to signify either a single composition, or a combination of surface care compositions.

Contemplated surface care compositions are cleansers, polishes, protectants, surfactants, and coloring agents, formulated or otherwise adapted for use on automobiles, trucks, boats, motorcycles, bicycles, and other vehicles. Many such adaptations are already
15 known. For example, cleansers adapted for vehicle surface care typically have a lower pH, and are far less damaging to clear coats than laundry detergents. Such cleansers are also typically formulated to leave a clean surface, as opposed to a filmy surface that might be left by a hand soap. As another example, waxes formulated for use on painted or clear coated
20 surfaces are formulated to withstand UV light, deter attachment of asphalt, and reduce damage otherwise caused by repeated contact with gasoline or diesel. Thus, surface care compositions are adapted for vehicle surface care in that they contain at least one different ingredient, and/or different quantities of ingredients than corresponding products formulated for other purposes, and their packaging typically indicates that the product is intended for
25 vehicle surface care.

Sheets can be pre-formed into sheets of substantially any suitable thickness, from films to wafers to much thicker, almost tablet like pieces. In alternative embodiments, even tablets are contemplated. The sheets need not be square or rectangular, but can be star shaped, round, oblong, or have some other shape such as a thin strip. Indeed, a product line
30 can use different shapes to distinguish different types of products, so that cleansers, for example, can be readily distinguished from waxes. Sheets can be packaged as stacks,

perforated rolls, or in any other suitable manner. Product packaging can include sheets that are bound or unbound, so that one packaging might include a tissue type dispenser, and another packaging might include a "booklet" having multiple sheets with different compositions on/in the various sheets. Sheets can also be colored, or have printing upon them, for marketing or other purposes.

Individual sheets can vary in overall size, but preferably have two large sides, each with a surface area from 10 to 200 cm², more preferably from 20 to 100 cm², and even more preferably from 20 to 50 cm² (all ranges used herein are to be interpreted to include the endpoints of the ranges). The size of a sheet can vary depending on its solubility, as well as the solubility of the surface care compositions, the amount of product being provided for a contemplated use, and a number of other anticipated factors, including but not necessarily limited to water temperature and salt content in the water.

Preferred substrates used for the dissolving sheets are already known in the industry for other applications. Currently, the most preferred products are, water soluble carriers are polysaccharides produced by Parachem in Des Moines, Iowa.

It is, of course, preferable that the sheets of the invention dissolve rapidly in water. Preferred sheets dissolve entirely or almost entirely within 2 minutes at normal room temperature, although it is contemplated that in some circumstances a sheet might take longer to dissolve. Certainly sheets that dissolve in less than two minutes are more desirable, especially those that dissolve in less than one minute, in less than 30 seconds, or in less than 15 seconds. It is also contemplated that sheets can have portions that are not dissolvable in water, such as fibers that would sink to the bottom of the bucket of water. Such sheets are still considered dissolvable in water, as long as at least 20 wt% of the sheet dissolves in water at normal room temperature within 5 minutes, with stirring.

Surface care compositions can be combined with water soluble carriers in the sheets in any suitable manner. For example, surface care compositions can be coated onto one or more surfaces of a pre-formed sheet, combined with a carrier composition and then formed into sheets, or at least partially encapsulated within a cavity of the sheet. Sheets do not have to be flat or smooth. Depending on the carrier(s) and compositions used, the sheet or other product can be released as a soapy liquid, a foam, an effervescent soap, etc.

The term "water" is used herein in its broadest sense. Thus, water includes ordinary tap water, distilled water, bottled drinking water, and even reclaimed or otherwise impure water.

The surface care composition(s) can be added to the substrate in any suitable form.

5 Dried forms are preferred over moist or wet forms, with drying accomplished using spray drying, freeze-drying, and so forth. Powdered concentrates are especially preferred for many surface care composition(s), including cleansers, and other products that are typically sold as powdered concentrates.

The surface care composition(s) can be added to the substrate in any suitable
10 configuration. In Figure 1, the surface care composition 114 occupies only a portion of one side of the substrate 112. In other contemplated embodiments (not shown), the surface care composition 114 occupies the entirety of one or both sides of the substrate 112.

In Figure 2, a sheet 120 has a surface care composition 124 distributed throughout the substrate 122.

15 In Figure 3, a sheet 130 has a surface care composition 134 enclosed within a pocket inside substrate 132.

In Figure 4, a sheet 140 comprises a water soluble substrate 142 having a large number of small cavities 143, such as might result if sheet 140 were formed by weaving. At least some of the cavities 143 contain a surface care composition 144 that is adapted to be
20 applied to a vehicle after it is released into water.

In Figure 5, a booklet 150 comprises a stack of water dissolvable sheets 152 containing a surface care composition, packaged with indicia 156 in the form of graphic and text instructions indicating that the sheets can be mixed with water to prepare a surface care composition that can be applied to a vehicle. Alternatively, the instructions can be included
25 with a commercial product as a separate printed sheet (not shown). In Figure 5 the sheets 152 are stacked together, and stapled 153 along with cover 155 bearing indicia 156. As with the sheets of Figures 1-4, each of the sheets 152 of booklet 150 comprises a water soluble carrier and at least one surface care composition where the carrier and ingredient are combined in a manner that causes the surface care composition to be released into a quantity of water as the
30 carrier dissolves in the water. To facilitate removal of individual sheets, each of the sheets

152 can advantageously comprise a plurality of perforations 158 positioned adjacent to a bound side of the booklet 150.

In Figure 6, a sheeted product 160 comprises a stack of water soluble sheets 162, indicia 166, a dispenser 167, and packaging 169. The sheeted product of Figure 6 differs from that of Figure 5 in that the sheets 162 are loosely stacked (i.e. not fastened together) within dispenser 167 instead of being stapled together into a booklet. As with product 500 of Figure 5, the indicia 166 is provided in the form of graphic and text instructions, and indicates that the sheets 162 can be mixed with water to prepare a surface care composition that can be applied to a vehicle.

10 In Figure 7, a sheet 170 comprises perforations 178 that facilitate dividing sheet 170 into smaller sheets 172.

In an especially preferred embodiment, a thin sheet such as that of Figure 1A. contains Meguiar's™ Deep Crystal™ or Rich Suds™ car wash. When the sheet is submersed in a bucket of water, the sheet dissolves, releasing the car wash into the water. The car wash is then used to wash a car, boat, or other vehicle. Other preferred surface care compositions include Meguiar's™ Cleaner/Wax, and Meguiar's™ Deep Crystal™ polish. And protectants for all surfaces.

Another contemplated product is a solid non-dissolvable carrier, such as a sponge, that contains the one or more surface care compositions. In that case the surface care composition(s) would be released upon insertion of the carrier into a volume of water.

In yet another class of alternative embodiments, In further preferred embodiments, a water-soluble solid sheet may be treated with a surface protectant, such as those that may be used to protect dashboards and vehicle interiors. The surface protectant, for example a car wax, may be used to protect paint. Other contemplated surface protectants may protect tires, chrome or other metal alloy on a vehicle. The surface protectant will be released upon mixing or dissolution of the solid sheet in water. Thus, a protective product may be a solid non-dissolvable form, in which the active composition is released by adding ordinary tap water to the contemplated solid sheet.

Thus, specific embodiments and applications of vehicle surface care products in sheet form have been disclosed. It should be apparent, however, to those skilled in the art that

- many more modifications besides those already described are possible without departing from the inventive concepts herein. The inventive subject matter, therefore, is not to be restricted except in the spirit of the appended claims. Moreover, in interpreting both the specification and the claims, all terms should be interpreted in the broadest possible manner
- 5 consistent with the context. In particular, the terms "comprises" and "comprising" should be interpreted as referring to elements, components, or steps in a non-exclusive manner, indicating that the referenced elements, components, or steps can be present, or utilized, or combined with other elements, components, or steps that are not expressly referenced.